



THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

Office of the General Manager

March 1, 2014

**CERTIFIED MAIL
RETURN RECEIPT REQUESTED**

Mr. Steven Armann, Manager
RCRA Corrective Action Office
U.S. Environmental Protection Agency
Region 9
75 Hawthorne Street
San Francisco, CA 94105

**Request for TSCA Risk-Based Disposal Approval
For the Removal of PCB-Containing Caulk
Robert B. Diemer Treatment Plant, Basins 1 through 8**

Dear Mr. Armann:

The Metropolitan Water District of Southern California (Metropolitan) is requesting a Risk-Based Disposal Approval from the U.S. Environmental Protection Agency (EPA) under 40 CFR 761.61(c). This approval is for the removal of Polychlorinated Biphenyl (PCB) containing caulking material, in contact with drinking water, from treatment plant basins (Nos. 1-8) at Metropolitan's Robert B. Diemer Water Treatment Plant (Diemer) in Yorba Linda, California.

I INTRODUCTION

Metropolitan is committed to removing PCB-containing caulk whenever it is discovered in our system. Metropolitan has instituted a practice of testing for PCBs when conducting any projects involving caulk removal or repair projects, and has had a long-standing practice of monitoring for PCBs in water as part of our operation. The PCB regulations, however, do not provide a means of determining what constitutes "complete removal" when removing caulk from a porous material (e.g. concrete) under conditions such as ours. This approval, if granted, would provide Metropolitan with measurement-based caulk removal criteria to be used for the upcoming Diemer project. [Attachment A shows Metropolitan's distribution system, an aerial view of the Diemer Plant, several photographs of Diemer Basin No. 4, and overview of its basin joints containing original caulk.](#)

Metropolitan previously requested and received approval for a similar caulk removal and replacement project at our Joseph Jensen Water Treatment Plant (Jensen) Basin No. 3 in 2008¹.

¹ Letter from Nancy Lindsay, USEPA to Bobbi Becker, Metropolitan dated April 28, 2008, entitled "April 16, 2008 Request for TSCA Risk-Based Disposal Approval under 40 CFR 761.61(c) for Jensen Treatment Plant – EPA Conditional Approval for Basin No. 3".

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The Diemer application and associated work plan is based on the Jensen application, and relies on the similar proof-of-concept laboratory testing developed for the Jensen project.

As with Jensen, Metropolitan is submitting this Risk-Based Disposal Approval option under subpart 761.61(c) of the PCB regulations because that regulatory approach best fits the situation at Diemer, and provides the maximum assurance that residual caulk removal is accomplished, thus eliminating potential risk to human health and the environment.

Before beginning development of this application, we met with you in July of 2012 to solicit your thoughts and suggestions for our path forward. In particular, we shared your desire that this approval represent a repeatable approach for any of Metropolitan's future basin abatement projects. We both recognized the importance of providing uninterrupted drinking water service to Southern California, and agreed on the need to develop a protocol that minimizes downtime and allows us to accurately schedule outages and return-to-service dates.

In July we also agreed that our studies, laboratory research, and testing conducted at Jensen were sufficient, and that we could build on our success at Jensen in developing this application. That being said, we endeavor to improve the implementation mechanics and recently conducted some field trials using vacuum shrouded, dustless concrete scabbler and scarifer, the results of which are reflected in this proposal.

II BACKGROUND

Metropolitan is comprised of 26 member agencies including cities and water districts that supplies more than one-half of the drinking water used by approximately 19 million people in the 5,200 square-mile coastal plain of Southern California. Metropolitan imports water from the Colorado River and Northern California. To provide this service, Metropolitan operates an extensive system of water conveyances, reservoirs, and water treatment plants. As the largest drinking water provider in the nation, it is Metropolitan's mandate to meet the highest water quality standards. The continued, uninterrupted operation of our facilities affected by the requested Risk-Based Disposal Approval is critical in fulfilling this mandate and in meeting the drinking water demands of the Southern California communities we serve.

As a public water agency, we are extremely sensitive to public health issues, as you are, and have taken a very conservative approach to managing the PCB caulk issue. Drinking water is tested routinely for a wide range of potential contaminants including PCBs. No effluent testing has ever found PCBs present above the minimum reporting level of 0.10 ug/L or the drinking water MCL of 0.5 ug/L (see Attachment B for recent copy of water quality results).

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We believe our approach to PCB-containing caulk removal and replacement, as demonstrated at Jensen, is protective of human health, while allowing us to address any future discoveries quickly without interrupting the regional water supply.

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The Diemer Plant was placed into service in 1963. The original equipment in the existing eight basins is aging and needs to be rehabilitated to maintain water treatment reliability. Prior to beginning an upcoming repair project at Diemer Basin No. 4, Metropolitan sampled the ~~construction-basin~~ joint caulk and expansion joint caulk and found that it contained PCBs exceeding 50 mg/kg. ~~Attachment A shows Metropolitan's distribution system, an aerial view of the Diemer Plant, several photographs of Diemer Basin No. 4, and overview of its basin joints containing original caulk.~~ This discovery was reported to EPA, and has been the subject of numerous communications with EPA since then.

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Metropolitan staff will ask its Board of Directors to authorize (middle-Fall of 2014) a rehabilitation project addressing all 8 basins at the Diemer facility. The Diemer facility employs seven other basins in addition to Basin No. 4. Mitigation of PCBs in all basins will be a part of the overall project scope for the Board's consideration.

III CAULK AND CONCRETE REMOVAL OVERVIEW

Metropolitan sampling has identified PCB containing caulk in Diemer Basin No. 4. Further, our testing indicates the presence of PCB in the concrete immediately adjacent to the caulk. (See Appendix CB: Caulk and Concrete Results). Metropolitan proposes a refined clean-up strategy to address PCBs-containing caulk and concrete at the Diemer basins.

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Based on our research to date and, in particular, our experience at Jensen Basin No 3 we have found that PCB clean-up objectives can be achieved by first removing the PCB containing caulk and secondly by removing a measured amount of the adjacent concrete.

Prior to full implementation at the Dimer Basins, this caulk and concrete removal method will be demonstrated in Diemer Basin No 4. Once demonstrated, the method will be applied to the rest of ~~B~~basin No. 4 and ultimately to the other seven basins. The elements of this demonstration are outlined below:

Demonstrate ~~Demonstrate~~ Caulk and Concrete Removal Method:

Metropolitan will select 10 locations in Basin No. 4 where PCB concentration in the caulk exceeds 10,000 mg/kg. These qualifying locations will be based on 2008 Tetra Tech sampling (See Appendix CB). In these ten locations Metropolitan will:

- a. Verify Demonstration Locations: Some locations noted by Tetra Tech have been repaired (i.e. caulk replaced). This can make precise identification of these locations difficult. If needed, sample the caulk to better more determine precisely determine the precise location of qualifying caulk.

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- b. Caulk Removal: Remove caulk from 10 qualifying locations and wash the joint with Alconox.
- c. Concrete Removal: First, remove 1/8 inch of concrete from the interior sides of the joint up to a depth of 2 inches (note: in cases where joint depth is less than 2 inches, removal will be to the joint bottom). This will result in the joint width expanding by 1/4 inch. Secondly, remove 1/8 inch of concrete from the surface adjacent to the joint for 3 inches on each side of the newly expanded joint.
- d. Concrete Sampling: Using a 5/8 3/4" drill bit, obtain a sample of concrete adjacent to the joint in each qualifying location. Sample will be obtained along the centerline of the 3 inch wide area immediately adjacent and on both sides of the joint. Drill bit shall penetrate approximately 1/2 inch into the concrete. Because the 1/2 inch penetration may not generate sufficient sample for lab purposes, additional drill locations may be utilized but all additional drillings must be within 12" lengthwise on either side of the joint.
- e. Analyze the results: If all ten samples are within the 22 mg/kg clean-up objective (see Section IV), the 1/8" Concrete Removal technique is considered successful and applicable to the remainder of Basin No. 4 and the other 7 Diemer basins. Otherwise proceed to next step.
- f. Additional Concrete Removal: As necessary an additional 1/8 inch (second pass) concrete will be removed. A maximum 1/4 inch removal is set for structural integrity reasons. Repeat sampling and analysis described above in steps d and e. If all samples are now within the 22 mg/kg clean-up objective, the 1/4 inch Concrete Removal technique is considered successful and applicable to the remainder of Basin No. 4 and the other 7 Diemer basins.
- g. Demonstration Conclusion: If sampling fails to demonstrate the efficacy of the Concrete Removal Technique, Metropolitan will utilize encapsulation as described in Section VII. If sampling successfully demonstrates the efficacy of the Concrete Removal Technique, Metropolitan will proceed with a four step process in each basin as described below.

Post Demonstration Implementation

Once demonstrated successfully for meeting the clean-up objective, the Caulk and Concrete Removal Method will be applied to the rest of Basin No 4 and to the other 7 basins at Diemer. Implementation will consist of four steps as described below:

1. **Caulk Removal:** Remove any PCB-containing caulk, and clean the concrete joint using Alconox.

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2. **Concrete Removal:** As established in the Demonstration, ~~remove, remove~~ concrete from the interior sides of the joint up to a depth of 2 inches. This will result in a wider joint . Secondly, remove concrete from the surface adjacent to the joint for 3 inches on each side of the newly expanded joint.
3. Restore joint: Treated area is resurfaced with an epoxy coating upon which new (non-pcb containing) caulk is applied.
4. Water Quality Testing: Metropolitan will then implement Section VIII "On-going Monitoring of PCBs in Treated Water".

IV DISCUSSION OF PCB CLEAN-UP OBJECTIVES

Metropolitan proposes a clean-up objective of 22 mg/kg in the bulk sampling. This objective is based upon the leachability study performed for Jensen² (same/similar concrete and caulk). In the study, solid core concrete samples containing up to 22 mg/kg PCB residual caulk showed no measurable PCB leaching. See Attachment D-DE Leachability Study.

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VI PROPOSED RISK-BASED PCB SAMPLING STANDARDS

Due to time constraints, Metropolitan may elect to assume the caulk and adjacent concrete in the seven remaining untested basins at Diemer are PCB--containing and proceed directly with the Caulk and Concrete Removal Method. However if time and opportunity present, Metropolitan may elect to fully characterize the caulk in one or more of these basins for purposes of excluding them from the scope of the project and this approval . In this event, the following sampling protocol is proposed for ~~caulk~~ sampling and characterization.

Proposed sampling frequency is based on 40 CFR 761 Subpart O, as negotiated and applied to our Jensen facility. Specifically the Jensen protocol called for: 1) Walls: one wall sample on every other joint and 2) Floor: one sample on every floor joint for a sampling frequency of one sample for every 200 linear feet of caulk joint. We conservatively applied this same strategy to Diemer basins and propose the following:

1) 40 floor samples at Diemer versus 30 floor samples at Jensen. This equates to one sample every 167 feet and

2) 27 wall samples at Diemer versus 14 wall samples at Jensen or a frequency of one sample every 30 feet.

² Leachability Study (extraction testing of PCB from concrete joints) transmitted via Letter from Bobbi Becker, Metropolitan to Arlene Kabei dated April 16, 2008

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3) As such, overall (wall and floor) sampling frequency would be one sample every 112 feet. (versus one sample for every 200 linear feet at Jensen)

VII ENCAPSULATION

If PCB abatement is not successfully demonstrated after two passes of concrete removal (see Section III), Metropolitan proposes encapsulation of the joints in affected locations.

Metropolitan's coating staff is renowned for their expertise and experience in coating water contact facilities. They propose a multi-layered-, contrasting colored, spray coating system rather than using brushes, as we believe brush painting could mobilize any PCB remaining on the concrete surface and thereby dissolve it in the coating.

Metropolitan proposes to conduct an annual visual inspection of the coating to ensure that wear or degradation of the top layer does not occur. Inspection will consist of visually inspecting the top coating layer for signs of cracking, delaminating or evidence of the contrasting bottom layer color showing through. Any positive inspection results will be followed by additional inspection and repair, if necessary.

Metropolitan also proposes to take steps to properly record the information in a manner that will alert future repair workers of its location before beginning work. We believe that repair workers are the only personnel that would potentially be exposed to residual PCB. Metropolitan proposes to record the location of the concrete containing residual PCB in its internal record of hazardous material locations, and to include a check of this record as part of our standard project planning. Because this process is a company requirement, notification of residual PCB presence will happen as part of routine operations. As such, no PCB labels would be required on the basins themselves.

All materials of construction used in the basin will meet NSF 61 standards for materials in contact with drinking water.

VIII ONGOING MONITORING OF PCB IN TREATED WATER

Metropolitan proposes to monitor the effectiveness of the abatement by periodically testing the basin water effluent for PCBs and comparing the results against the established drinking water maximum contaminant level (MCL) for PCBs. This procedure, as outlined below, was also followed at Jensen Basin No. 3.

- 1) After completion of PCB removal, the basin will be refilled and the water allowed to stand for 72 hours, then sampled and analyzed for PCBs.

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2) Effluent monitoring will then be performed quarterly near the discharge end of each affected basin for the first year after the abatement is implemented (following the conditions of our normal operating permit).

2)3) On sediment sample will be collected from the basin during the first quarter of operations and analyzed for PCBs.

The immobility of PCBs from basin caulk has been confirmed repeatedly through historical testing of each of Metropolitan's treatment plant effluents, which is required under our operating permit. Annual monitoring for PCBs, pesticides, herbicides, and semi-volatiles at Metropolitan's source waters and five treatment plant effluents began in 1985. As mentioned previously, No effluent testing has ever found PCBs present above the minimum reporting level of 0.10 ug/L or the drinking water MCL of 0.5 ug/L (see Attachment BDC for recent copy of water quality results).

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IX CONCLUSION

Metropolitan respectfully requests that the EPA grant a Risk-Based Disposal Approval to use the proposed caulk removal and confirmation sampling protocols methods described herein for the 8 basins at the Robert B. Diemer Water Treatment Plant. Additionally, as described in 40 CFR 761.61a(3)E, Metropolitan has certified the contents of this letter (see attachment E)

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Metropolitan is confident that the proposed approach to residual PCB caulk removal and monitoring is protective of human health. We also believe that this approach is approach is consistent with the intent of the PCB regulations. Metropolitan operates under strict drinking water quality regulations and is constantly vigilant regarding the quality and safety of water provided to our customers. The drinking water that we supply to our approximately 19 million customers meets the highest standards and is consistently in compliance with the regulatory drinking water quality requirements, including PCB levels.

Please feel free to contact me at the number below or John Clark at (213) 217-5504 with any questions. We are available to meet with you in your offices at any time to discuss this proposal.

Very truly yours,

Bart Koch
Safety and Environmental Services Section Manager
(213) 217-5646

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Cc: J. E. Clark
J. C. Teraoka
S. G. Lai

— G. T. Lai-Bluml

Enclosures: Attachment A - Metropolitan's distribution system, aerial view of the Diemer Plant, and photos of Diemer Basin No. 4

Attachment B - Recent copy of water quality results ~~Caulk and Concrete Sampling Data collected at Diemer~~

Attachment C - Caulk and Concrete Sampling Data collected at Diemer
~~Leachability Study (extraction testing of PCB from concrete joints) transmitted via Letter from Bobbi Becker, Metropolitan to Arlene Kabei dated April 16, 2008.~~

Attachment D - Leachability Study (extraction testing of PCB from concrete joints) transmitted via Letter from Bobbi Becker, Metropolitan to Arlene Kabei dated April 16, 2008. ~~Recent copy of water quality results~~

Attachment E - Certification

Note:

Attachment E is found below on this documents. Attachments A-D are in separate file attached to email.

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Attachment E: Certification

The Metropolitan Water District of Southern California (Metropolitan) under criminal and civil penalties of law for the making or submission of false or fraudulent statements or representations (18 U.S.C. 1001 and 15 U.S. C. 2615) certifies that the information contained in or accompanying this document is true, accurate and complete. Further, all sampling plans, sample collection procedures, sample preparation procedures, extraction procedures, and instrumental/chemical analysis procedures used to assess or characterize the PCB contamination at the cleanup site, are on file at the Metropolitan, Union Station Office Building at: **700 North Alameda Room 8-110 Los Angeles, California 90012** and are available for United States Environmental Protection Agency Inspection.

Certified by Property Owner's Representative Certified by Cleanup Manager

<u>Bart Koch</u>	<u>Wally M. Lieu</u>
<u>Section Manager</u>	<u>Section Manager</u>
<u>Safety and Environmental Services</u>	<u>Engineering</u>